

Form PTO 1449 (Modified)	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO.	SERIAL NO.			
			8733.20101	<del>None Available</del>			
	APPLICANT		Mi Sook NAM et al.				
LIST OF REFERENCES CITED BY APPLICANT (Use Several Sheets if Necessary)		FILING DATE	GROUP				
		Herewith	TBA 1172				
U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
874	AA	4,974,941	12/04/90	Gibbons et al	350	349	
874	AB	5,032,009	07/16/91	Gibbons et al	350	341	
874	AC	5,073,294	12/17/91	Shannon et al	252	299.01	
874	AD	5,296,321	03/22/94	Kawanishi et al	430	20	
874	AE	5,389,698	02/14/95	Chigrinov et al	522	2	
FOREIGN PATENT DOCUMENTS							
		DOCUMENT NUMBER	DATE	COUNTRY		TRANSLATION YES      NO	
874 (ABS)	AF	0 525 473	02/03/93	EPO		ABSTRACT	
874 (ABS)	AG	0 525 478	02/03/93	EPO		ABSTRACT	
874 (ABS)	AH	0 611 786	07/23/96	EPO		ABSTRACT	
874	AI	0 708 354	04/24/96	EPO		YES	
874	AJ	0 742 471	11/13/96	EPO		YES	
874	AK	0 750 212	12/27/96	EPO		YES	
874 (ABS)	AB	44 20 585	12/14/95	GERMANY		NO	
SH (U.S.EQUV) US 4963448	AM	64-60833	03/07/89	JAPAN		NO	
874 (ABS)	AN	1-251344	10/06/89	JAPAN		ABSTRACT	
874 (ABS)	AO	1-251345	10/06/89	JAPAN		ABSTRACT	
OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)							
874	AP	W. Gibbons, et al., <i>Surface-mediated alignment of nematic liquid crystals with polarized laser light</i> , Letters to Nature, Vol. 351, 05/02/1991, pp. 49 & 50.					
874	AQ	Martin Schadt, <i>Surface-Induced Parallel Alignment of Liquid Crystals by Linearly Polymerized Photopolymers</i> , Jpn. J. Appl. Phys. Vol. 31 (1992), Part 1, No. 7, July 1992.					
874	AR	Yasufumi Iimura, et al., <i>Alignment Control of a Liquid Crystal on a Photosensitive Polyvinylalcohol Film</i> , Jpn. J. Appln. Phys. Vol. 32 (1993), Part 2, No. 1A/B, 01/15/93.					
EXAMINER	Soo-F. Lee			DATE CONSIDERED		07/25/02	
*EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.							

Form PTO 1449 (Modified)	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY. DOCKET NO.	SERIAL NO.
		8733.20101	New Application 09/534,723
		APPLICANT	
		Mi Sook NAM et al.	
LIST OF REFERENCES CITED BY APPLICANT (Use Several Sheets if Necessary)		FILING DATE	GROUP
		Herewith	TBA 1992

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLAS S	SUB CLASS	FILING DATE IF APPROPRIATE
8H	AS	5,447,662	09/05/95	Herr et al	252	582	
8TA	AT	5,453,862	09/26/95	Toko et al	359	76	
8T	AU	5,464,669	11/07/95	Kang et al	428	1	
8T	AV	5,479,282	12/26/95	Toko et al	359	75	
8TA	AW	5,538,823	07/23/96	Park et al	430	20	

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION YES	NO
8T (ABS)	AX	2-55330	02/23/90	JAPAN	ABSTRACT	
8TA (AJS)	AY	2-298917	12/11/90	JAPAN	ABSTRACT	
8T (ABS) <del>AZ</del>	3-36527	02/18/91	JAPAN		NO	
8TA (ABS)	BA	04-7520	01/10/92	JAPAN	ABSTRACT	
8T (ABS)	BB	4-284421	10/09/92	JAPAN	ABSTRACT	
8T (ABS)	BC	4-350822	12/04/92	JAPAN	ABSTRACT	
8T (ABS)	BD	5-34699	02/12/93	JAPAN	ABSTRACT	
8T (ABS)	BE	5-53513	03/05/93	JAPAN	ABSTRACT	
8T (ABS)	BF	5-232473	09/10/93	JAPAN		NO
8T (ABS)	BG	7-261185	10/13/95	JAPAN	ABSTRACT	

## OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)

8H	BH	KUNIHIRO ICHIMURA, PHOTOCONTROL OF LIQUID CRYSTAL ALIGNMENT, 1993 Kunihiro Ichimura, Photocontrol of Liquid Crystal Alignment, 1993.
8TA	BI	T. Marushii, et al., Photosensitive Orientants for Liquid Crystal Alignment, Mol. Mat. 1993, Vol. 3, pp. 161-168.
8T	BJ	Y. Toko, et al., TN-LCDs Fabricated by Non-Rubbing Showing Wide and Homogeneous Viewing Angular Characteristics and Excellent Voltage Holding Ratio, SID 93 Digest, pp. 622-625.

EXAMINER	8T - F - 6	DATE CONSIDERED	6/7/25/02
----------	------------	-----------------	-----------

\*EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Form PTO 1449 (Modified)	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY. DOCKET NO.	SERIAL NO.
		8733.20101	<u>New Application</u> <i>09/534,723</i>
		APPLICANT	
		Mi Sook NAM et al.	
LIST OF REFERENCES CITED BY APPLICANT (Use Several Sheets if Necessary)		FILING DATE Herewith	GROUP <del>TBA</del> <i>1002</i>

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
<i>PA</i>	BK	5,539,074	07/23/96	Herr et al	<i>526</i>	<i>326</i>	
<i>PA</i>	BL	5,576,862	11/19/96	Sugiyama et al	<i>359</i>	<i>75</i>	
<i>PA</i>	BM	5,578,351	11/26/96	Shashidhar et al	<i>428</i>	<i>1</i>	
<i>PA</i>	BN	5,602,661	02/11/97	Schadt et al	<i>349</i>	<i>124</i>	
<i>PA</i>	BO	5,604,615	08/15/97	Iwagoe et al	<i>349</i>	<i>124</i>	

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION YES      NO
<i>PA (ABS)</i>	BR	7-56173	03/03/95	JAPAN	ABSTRACT
<i>PA (ABS)</i>	BQ	8-334790	12/17/96	JAPAN	ABSTRACT
<i>PA (ABS)</i>	BR	9-211468	08/15/97	JAPAN	ABSTRACT
<i>PA</i>	BS	96/22561	07/25/96	PCT	YES
<i>PA</i>	BT	2 281 977	03/22/95	UK	YES
<i>PA</i>	BU	2 286 893	08/30/95	UK	YES
<i>PA</i>	BV	2 310 048	08/13/97	UK	YES

## OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)

<i>PA</i>	BW	P. Shannon, et al., <i>Patterned optical properties in photopolymerized surface-aligned liquid-crystal films</i> , Letters to Nature, Vol. 368, 04/07/94, pp. 532 & 533.
<i>PA</i>	BX	Y. Iimura, et al., <i>Invited Address: Electro-Optic Characteristics of Amorphous and Super-Multidomain TN-LCDs Prepared by a Non-Rubbing Method</i> , SID 94 Digest, pp. 915-918.
<i>PA</i>	BY	M. Schadt, et al., <i>Photo-Generation of Linearly Polymerized Liquid Crystal Aligning Layers Comprising Novel, Integrated Optically Patterned Retarders and Color Filters</i> , Jpn. J. Appl. Phys. Vol. 34 (1995), pp. 3240-3249, Part 1, No. 6A, June 1995.

EXAMINER *Sou-F-H.*DATE CONSIDERED *07/25/02*

\*EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

**\*EXAMINER:** Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

\*EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Form PTO 1449 (Modified)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. 8733.20101	SERIAL NO. <i>New Application</i>
		APPLICANT Mi Sook NAM et al.			
LIST OF REFERENCES CITED BY APPLICANT (Use Several Sheets if Necessary)		FILING DATE Herewith		GROUP <del>FBA</del> 1992	
U.S. PATENT DOCUMENTS					
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS
<i>P24</i>	CP	5,909,265	06/01/99	Kim et al	349 129
<i>P24</i>	CQ	5,982,466	11/09/99	Choi et al	349 124
FOREIGN PATENT DOCUMENTS					
		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION YES      NO
OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)					
<i>P24</i>	CR	A. Lien, <i>UV-Type Two-Domain Wide Viewing Angle TFT/LCD Panels</i> , Asia Display '95, pp. 593-596.			
<i>P24</i>	CS	T. Yamamoto, <i>Liquid-Crystal Alignment by Slantwise Irradiation of Non-Polarized UV Light on a Polyimide Layer</i> , SID 96 Digest, pp. 642-645.			
<i>P24</i>	CT	M. Schadt, et al., <i>Optical patterning of multi-domain liquid-crystal displays with wide viewing angles</i> , Letters to Nature, Vol. 381, 05/16/96			
<i>P24</i>	CU	J. Chen, <i>Model of liquid crystal alignment by exposure to linearly polarized ultraviolet light</i> , Physical Review E, Vol. 54, No. 2, August 1996, pp. 1599-1603			
<i>P24</i>	CV	H. Soh, et al., <i>The Realization of Wide Viewing Angle TFT-LCDs using Photo-Alignment Method</i> , Euro Display '96, pp. 579-582.			
<i>P24</i>	CW	J. Chen, <i>Mechanism of Liquid-Crystal Alignment by Polyimide Exposure to Linearly Polarized UV Light</i> , SID 96 Digest, pp. 634-637			
<i>P24</i>	CX	K. Lee, et al., <i>Late-News Poster: Mechanism of UV Modification of LC Pretilt Angle and Its Application to Two-Domain TN-LCDs</i> , SID 96 Digest, pp. 638-641.			
<i>P24</i>	CY	J. Kim, et al., <i>Late-News Poster: Photo-Alignment of Liquid Crystals Using a New Photopolymer</i> , SID 96 Digest, pp. 646-649.			
<i>P24</i>	CZ	Y. Saitoh, et al., <i>Stability of UV-Type Two-Domain Wide-Viewing-Angle TFT-LCD Panels</i> , SID 96 Digest, pp. 662-665			
<i>P24</i>	DA	D. Seo, et al., <i>Invited Address: Surface Alignment of Liquid Crystals in LCDs</i> , SID 93 Digest, pp. 954-956.			
<i>P24</i>	DB	Y. Iimura, <i>Invited Paper: Prospects of the Photo-Alignment Technique for LCD fabrication</i> , SID 97 Digest, pp. 311-314.			
EXAMINER	<i>Son-Fu H.</i>			DATE CONSIDERED	<i>07/25/02</i>
*EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.					

Form PTO 1449 (Modified)	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY. DOCKET NO.	SERIAL NO.				
		8733.20101	New Application <i>09/534,723</i>				
		APPLICANT					
		Mi Sook NAM et al.					
LIST OF REFERENCES CITED BY APPLICANT (Use Several Sheets if Necessary)		FILING DATE Herewith	GROUP <i>1772</i>				
U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
				FOREIGN PATENT DOCUMENTS			
		DOCUMENT NUMBER	DATE	COUNTRY		TRANSLATION YES      NO	
OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)							
<i>SA</i>	DC	R. Shashidhar, et al., A New Non-Rubbing Technique for Liquid-Crystal Alignment, SID 97 Digest, pp. 315-318.					
<i>SA</i>	DD	M. Schadt, et al., Invited Paper: Optical Patterning of Multidomain LCDs, SID 97 Digest, pp. 397-400.					
<i>SA</i>	DE	K. Han, et al., A Study on the Photo-Alignment of the Polymer-Containing Cinnamate Group Using a New Single UV-Exposure Method, SID 97 Digest, pp. 707-710.					
<i>SY</i>	DF	F. Yamada, et al., Late-News Poster: A New Photo-Alignment Scheme for LC-Cell Pretilt Control, SID 97 Digest, pp. 715- 718.					
<i>SA</i>	DG	M. Nam, et al., Wide-Viewing-Angle TFT-LCD with Photo-Aligned Four-Domain TN Mode, SID 97 Digest, pp. 933-936.					
EXAMINER	<i>Soo-F-H.</i>			DATE CONSIDERED		<i>07/25/02</i>	

\*EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICELIST OF REFERENCES CITED BY  
APPLICANT

(Use Several Sheets if Necessary)

Date: December 1, 2000

Attorney Docket No.:  
8733.229.00Application No.:  
09/534,723Applicant:  
Mi Sook NAM et al.Filing Date:  
March 24, 2000Group:  
Unknown

1112

RECEIVED  
JUL 25 2001  
TC 2800 MAIL ROOM

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL*		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	AA						
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						

## FOREIGN PATENT DOCUMENTS

	Document No.	Date	Country	TRANSLATION	
				YES	NO
PA	AK 0 690 334	01/1996	EPO		<input checked="" type="checkbox"/>
AL					
AM					
AN					
AO					

## OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)

PA	AP	UK Search Report and Examination, pp. 1-4, July, 2000	RECEIVED JUL 25 2001 TC 2800 MAIL ROOM
	AQ		
	AR		

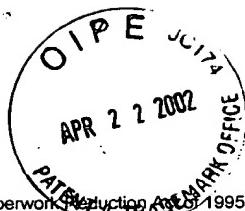
Examiner Signature

JW-F-1h.

Date Considered:

07/22/02

\*EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



PTO/SB/08A (10-01)

Approved for use through 10/31/2002. OMB 0651-0031

**U. S. Patent and Trademark Office: U. S. DEPARTMENT OF COMMERCE**

~~Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.~~

Substitute for form 1449A/PTO				<i>Complete if Known</i>	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>				<b>Application Number</b>	09/534,723
				<b>Filing Date</b>	March 24, 2000
				<b>First Named Inventor</b>	Mi S. Nam
				<b>Art Unit</b>	1772
				<b>Examiner Name</b>	S. Hon
Sheet	1	of	1	Attorney Docket Number	

## **U.S. PATENT DOCUMENTS**

**RECEIVED**  
APR 24 2002  
70-1700

## FOREIGN PATENT DOCUMENTS

<sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup>See attached Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup>Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the application number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup>Applicant is to place a check mark here if English language Translation is attached.

#### **OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS**

**EXAMINER'S RANK AND PATENT INFORMATION DOCUMENT**

Examiner Initials	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>

Examiner Signature	Su-F-H.	Date Considered	07/22/02
-----------------------	---------	--------------------	----------

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup>Applicant is to place a check mark here if English language Translation is attached.